REMARKS/ARGUMENTS

In the Office Action mailed on January 14, 2005, the Examiner rejected the claims of this application under 35 U.S.C. 112, first paragraph, as reciting subject matter which has no basis in the specification. Claims 1-20 were rejected as anticipated by Smithyman (USPN 6,047,497). Claims 5, 6, 10, 15 and 19 were rejected under 35 U.S.C. 103(a) as unpatentable over Smithyman et al in view of Blatchford (Australian Patent Application No. 32801/95).

The Applicants provided the following amendments to the claims:

1. The Applicant has restricted the apparatus Claim 1 to be dependent on method Claim 13 (defined as fumigation apparatus when used with the method of Claim 13).

2. The limitation "*a separate fumigation extraction means that is not connected to the fumigant inlet means*"in Claim 1, which the Examiner deemed had no basis in the specification, has been deleted.

In making these revisions, care has been taken to ensure that the claims remain supported by the specification and that no new matter has been added.

Applicant appreciates the time and consideration provided by the Examiner in reviewing this application, however, respectfully traverse the rejections of Claims at least for the following reasons.

Rejection under 35 USC 112

The Examiner objected to one limitation in the apparatus Claim 1, which was said to have no basis in the specification. The relevant phrase was "*a separate fumigation extraction means that is not connected to the fumigant inlet means*". In response to this, the phrase has now been deleted from Claim 1.

Rejections under 35 U.S.C. 102

Anticipation under 35 U.S.C. 102 requires that each an every claimed feature be disclosed by a single prior art reference.

The Applicant has now presented the method Claim 13 as a sole independent claim.

Claim 13 defines:

13. "A method of fumigating produce, the method comprising the steps of:

providing a fumigation apparatus including an ISO general purpose shipping container which at

least in part defines a fumigation chamber and a mobile fumigation means operatively coupled to the container;

locating the produce to be fumigated in the fumigation chamber;

providing a flow of a fumigant to the fumigation chamber *for a fumigation interval so that fumigation of the produce can occur, and not extracting fumigant from the chamber during the fumigation interval;*

after the fumigation interval, stopping the flow of fumigant to the chamber;

extracting at least some of the fumigant from the chamber; and

absorbing the fumigant extracted from the fumigation chamber."

The Italic portions of this claim are the limitations which have been added to this claim in previous official Amendments after national entry of the PCT application in the US.

The following passage of text from the specification as filed (which bridges pages 8 and 9) provides basis for these features, in particular the Italic sections:

Page 8, line 33 to page 9, line 24:

"During use, dunnage and timber material for fumigation is loaded onto the sliding floor 34 and then inserted into the fumigation chamber 16 using gas-tight end doors 32 to provide access for the load. *The end doors 32 are then sealed and heated toxic gases*, generated by warming liquefied fumigation reagent 20 by means of heating source 18, *directly enter the fumigation chamber* 16 via piping means 24. System control box 26 functions to control the flow of toxic gas into the fumigation chamber. As best illustrated in Figure 2, the mixing fans 28 and 30 *circulate gases within the fumigation chamber 16 when in use* to provide good mixing of toxic gases with the charged material. *When the fumigation interval is complete, the recirculation fans 28 and 30 are switched off, the flow of toxic gas into the chamber 16 is stopped and gas is evacuated from the fumigation chamber 16, flowing consecutively through orifice 38, pipe 36, actuated butterfly valve 40 and contra-rotating fan 42 before exiting the apparatus* via pipe exhaust stack 44. As a safety check of the concentration of toxic gases remaining in the fumigation chamber 16, gas samples are drawn via a plurality of the gas sampling lines 48 to a gas flow meter test unit located within system control box 26 and a readout is obtained so that the operator may ascertain *when it is safe to reopen end doors 32 and remove* the dunnage and timber material from the sliding floor 34 after fumigation. At this point the apparatus is ready for a new load of material for fumigation and a repeat procedure."

What are the main differences between the claimed invention and the prior art?

Importantly, the method of the present application is for a sequential operation of fumigation first, followed by stopping the flow of inlet fumigant and a subsequent extraction of the fumigant. A skilled person would understand this to be a "batch" type operation.The method of the present application includes the sequential steps of (i) providing a flow of a fumigant to the fumigation chamber for a fumigation interval and not extracting fumigant from the chamber during the fumigation interval, and then (ii) after the fumigation interval, stopping the flow of fumigant to the chamber and (iii) extracting the fumigant from the chamber. No fumigant is extracted until after the fumigation interval. The claimed method is for a sequential operation of fumigation first, followed by stopping the flow of inlet fumigant and then the extraction of fumigant. The fumigant remains in the shipping container during the fumigation interval and is mixed by being blown around inside the container by internal mixing fans.

By contrast, the method of Smithyman does not teach sealing the fumigant in the chamber during the fumigation interval, and does not teach delaying the extraction of that fumigant until after the fumigation interval is over. Instead, Smithyman teaches only a continuous recycle of the fumigant through the fumigation regions 44a-44c. In other words the fumigant gas enters and leaves the fumigation region throughout the fumigation interval. The Smithyman system must operate with continuous recycling of gas through the fumigation region so that it can achieve the promised safety benefits. The system of Smithyman shown in Figure 1 of US6,047,497 involves maintaining a gaseous mixture in constant recycle through the fumigation regions 44a-44c (column 4, lines 14-20). The gaseous mixture is usually phosphine gas mixed with one or more non-flammable inert gases, such as carbon dioxide and/or nitrogen (column 4, lines 36-38). The mixture of gases in the system of the citation is arranged so that the phosphine gas is not present in high concentrations, which can be highly flammable (column 1, lines 39-57). The stated problem of prior art phosphine fumigation processes which required solving by Smithyman was that there was "a need for systems capable of managing the flow of such gaseous mixtures during fumigation" (column 2, lines 50-51), as well as limiting flammability etc (column 2, lines 55-64).

The method of fumigation which is outlined by Smithyman involves "*removing a portion of the atmosphere from the regions* (44a-44c), *and returning the portion back to the region so as to create recycle flow of the atmosphere through the region, flowing a gaseous mixture from a source of the gaseous mixture to the region, the gaseous mixture including phosphine and being non-flammable in air, sensing concentration of phosphine for the atmosphere in the region, and controlling flow of the gaseous mixture to the region based on the sensed concentration of phosphine to form a pesticidal concentration of phosphine in the region*" (column 3, lines 31-40).

The fumigation system of Smithyman passes fumigant from a source 10 into the fumigation region 44 via valve 59, recycle flow line 56, recycling passage 42, valve 62 and branch inlet passage 50. The fumigant can also pass from the source 10 into the fumigation region 44 via supply line 40, region feed line 58, valve 60 and branch inlet passage 50. Once in the fumigation region 44, the gas passes directly into the exhaust passage 48 and via valve 72 back to the blower 54 and the recycling passage 42 back into the branch inlet passage 50. The recycle of flow in this manner is said to be very beneficial because it conserves the gaseous mixture and reduces the amount of phosphine that could be released into the environment (page 6, lines 53-56).

The continuous passage of fumigant through the fumigation chamber in the system of Smithyman is also described at column 9, lines 58-62 and column 10, lines 15-23. Without the recycle of phosphine fumigant gas mixtures, the system of Smithyman simply would not be able to operate as a fumigation system, nor would it be able to achieve the promised safety benefits over the admitted prior art equipment and processes (column 11, lines 36-51).

Advantages of the system of the present application

The use of a sealed "batch type" system into which known amounts of fumigant can be added, even to very high levels, allows the method of the present application to achieve a highly effective fumigation result compared with the system of the cited prior art in which the level of fumigant is constantly monitored and managed, largely to prevent ignition of a fire (Smithyman, column 9, lines 58-65). Whereas the system of the present application can achieve the desired fumigation condition quite quickly (page 5, lines 16-18), this is not the case in the cited prior art (Smithyman, column 10, lines 7-14): "Initially the gaseous mixture is diluted when it combines with the atmosphere present in the regions 44a-44c, and the recycling passage 42 before initiation of gas fumigation. Over time, more gaseous mixture flows into the recycling passage 42 and the regions 44a-44c, and eventually the concentration of phosphine in the regions 44a-44c increases to a pesticidal level".

For these reasons, the Applicant submits that independent Claim 13 is both novel and inventive in view of prior art.

Rejections under 35 U.S.C. 103(a)

According to MPEP 706.02(j):

"To establish a prima facie case of obviousness...the prior art reference (or references when combined) must teach or suggest all claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art

and not based on the applicant's disclosure."

Claims 5, 6, 10, 15 and 19 were rejected as being unpatentable over Smithyman (USPN 6,047,497) in view of Blatchford (AU32801/95). Applicant respectfully traverses this objection.

The inventions of Blatchford and of Smithyman both involve the generation of a fumigant gas mixture, but both operate in an entirely different manner to the present invention, as it is now defined. Both of these prior art methods involve maintaining a gaseous mixture in constant recycle, closed circuit through the fumigation regions (which are not actually shown in the drawings in Blatchford, only described). The gaseous mixture is usually phosphine gas mixed with one or more non-flammable inert gases, such as carbon dioxide and/or nitrogen. The mixture of gases in the system of these citations is arranged so that the phosphine gas is not present in high concentrations, which can be highly flammable.

The stated problem of prior art phosphine fumigation processes solved by Smithyman and Blatchford is the same, essentially to limiting the flammability of gases. In Blatchford, no unequal or inordinate rates of fumigant gas generation are said to be experienced in the circulatory loop gas flow system (page 14, lines 8-10). The 'chamber' 10 in Blatchford is a fumigant generation apparatus for connection to a fumigation region, and is designed internally to avoid any localised high concentrations of fumigant gas being generated.

The cited prior art documents neither teach nor suggest a method where, after the fumigation interval is concluded, the flow of fumigant is stopped and the extraction means initiated to remove the fumigant from the fumigation chamber. An ordinary skilled person in the art of fumigation would need some inventiveness to look past the known prior art methods and to develop a new methodology to enable fumigation of goods, possibly at very high or unrestricted concentration levels of fumigant, in a fast and highly effective manner. Smithyman and Blatchford developed methods that are complex and restrictive to operate. The claimed method of the instant invention does not need to operate with continuous recycling of fumigant in order to achieve effective fumigation. Therefore, it is respectfully submitted that independent Claim 13 and thus all of the claims as currently presented comply with 35 U.S.C. 103, and are allowable in view of the cited prior art.

In view of the above, it is respectfully submitted that the application is now in condition for allowance which is earnestly solicited.

The Commissioner is hereby authorized to charge any additional fees which may be required in this application under 37 C.F.R. §§1.16-1.17 during its entire pendency, or credit any overpayment, to Deposit Account No. 06-1135. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, other-wise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 06-1135.

Respectfully submitted,

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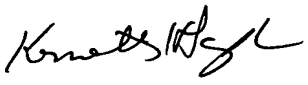
By: 

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